

JOOST-PIETER KATOEN'S CV

PERSONAL DETAILS

Name : Prof. Dr. Ir. Dr. h.c. Joost-Pieter Katoen (PDEng)
Date and place of birth: October 6, 1964; Krimpen aan den IJssel, The Netherlands
Nationality : Dutch
Sex : male
Status : married (3 children)
E-mail: katoen@cs.rwth-aachen.de
URL: <http://moves.informatik.rwth-aachen.de/~katoen>

RESEARCH INTERESTS

- Formal methods
- Computer-aided verification, in particular model checking
- Concurrency theory
- Probabilistic computation
- Semantics

ACADEMIC QUALIFICATIONS

Apr. 1996	Ph.D. in Computer Science	University of Twente
Feb. 1990	Professional Doctorate in Engineering	Eindhoven University of Technology
Dec. 1987	M.Sc. in Computer Science (with distinction)	University of Twente

EMPLOYMENT

Dec. 2004 – now	Full (C4) Professor Computer Science Software Modeling and Verification	RWTH Aachen University Germany
Jan. 2009 – now	Part-time Professor (1/5 fte) Computer Science	University of Twente The Netherlands
Mar. 1999 – Dec. 2008	Associate Professor (1/5 fte since 2005) Computer Science	University of Twente The Netherlands
Jan. 1997 – Feb. 1999	Postdoctoral Scientist Computer Architecture and Performance Evaluation Group	University of Erlangen– Nürnberg, Germany
Apr. 1992 – Dec. 1996	Research Associate Tele-Informatics and Open Systems	University of Twente The Netherlands
Jan. 1990 – Mar. 1992	Research Scientist Information and Softw. Technology	Philips Research Labs The Netherlands
Jan. 1988 – Dec. 1989	Research Assistant Parallel Program Design	Eindhoven Univ. of Tech- nology, The Netherlands

HONORS AND AWARDS

- 2017 Honorary Doctorate, Aalborg University, Denmark
- 2017 Visiting Professor (one month), ENS Paris-Saclay, France
- 2017 Visiting Professor (three months), Institute of Science and Technology Austria
- 2017 FAMOS Award for Work-Life Balance, RWTH Aachen University
- 2013 Member of the Academia Europaea
- 2013 Visiting Fellow Trinity College (four months), University of Oxford, UK
- 2013 Visiting Professor (three months), University de Grande Region, France¹
- 2013 Distinguished Professor, RWTH Aachen University
- 2013 Theodore von Kármán Fellow, RWTH Aachen University
- 2010 Visiting Professor (one month) Macquarie University, Sydney, Australia
- 2010 Member IFIP WG 2.2 on Formal Description of Programming Concepts
- 2010 Teaching Award Computer Science Department, RWTH Aachen University
- 2005 (Founding) Member IFIP WG 1.8 on Concurrency Theory
- 2004 Offer Full (C4) Professorship on Software Engineering, Univ. of Freiburg, Germany
- 2000-03 EPSRC Visiting Professor (one month/year), University of Birmingham, UK
- 1988 Early Career Development Award, Philips Consumer Electronics

AWARDS OF SUPERVISED STUDENTS AND BEST PAPER AWARDS

- 2017 C.V. Ramamoorthy Best Paper Award IEEE SRDS
- 2016 EATCS Best Theory Paper Award at ETAPS (> 500 submissions)
- 2016 IDEA Best Paper Award
- 2015 Second Place in CAV Artifact Evaluation
- 2015 Paper in Top-100 of most cited papers ever in Software Engineering².
- 2015 Sebastian Junges, Best Master Thesis in Computer Science in Germany (FTI Award)
- 2014 Mark Timmer, Overijssel Ph.D. Award (Best Ph.D. Dissertation at Univ. of Twente)
- 2014 FACS Best Paper Award
- 2013 Mark Timmer, Dutch Ph.D. Dissertation Award in Programming and Algorithmics
- 2012 Dino Distefano, Roger Needham Award (and CAV Award 2016)
- 2011 Marijn Jongerden, GI-MMB Ph.D. Dissertation Award (German Society of Informatics–Messung, Modellierung und Bewertung)
- 2010 Tingting Han, Overijssel Ph.D. Award (Best Ph.D. Dissertation at Univ. of Twente)

¹The “University of the Greater Region is a cross-border association of universities funded by the EU INTERREG Programme. It involves the Universities of Saarland, Liège (Belgium), Luxembourg, Lorraine (France), Kaiserslautern and Trier (Germany).

²The 2003 IEEE TSE paper Model-Checking Algorithms for Continuous-Time Markov Chains by C. Baier, B. Haverkort, H. Hermanns, and J.-P. Katoen is ranked 74 in the top-100 of most cited papers in software engineering (and ranked 57 in the top-100 when considering number of citations per year). The top-100 was published in Information & Software Technology (2015) and is based on surveying 70,000 papers.

1. Christina Jansen (Ph.D. RWTH Aachen, 2017):
Static Analysis of Pointer Programs.
2. Hao (Stephen) Wu (Ph.D. RWTH Aachen, 2017):
Industrial Applications of Probabilistic Model Checking.
3. Dennis Guck (Ph.D. University of Twente, 2017):
Reliable Systems: Fault Tree Analysis via Markov Reward Automata.
(Co-supervised by Mariëlle Stoelinga.) Currently Employee at TWT GmbH (Germany).
4. Friedrich Gretz (Ph.D. RWTH Aachen and Macquarie University, 2015):
Semantics and Loop-Invariant Synthesis for Probabilistic Programs.
(Co-supervised by Annabelle McIver.) Currently Researcher at Bosch R& D (Germany).
5. Falak Sher (Ph.D. RWTH Aachen, 2015):
Abstraction and Refinement of Probabilistic Automata using Modal Stochastic Games.
Currently Lecturer at the IT University Lahore (Pakistan).
6. Jonathan Heinen (Ph.D. RWTH Aachen, 2015):
Verifying Java Programs with Graph Grammars.
Currently Software Developer (Germany).
7. Arpit Sharma (Ph.D. RWTH Aachen, 2015):
Reduction Techniques for Nondeterministic and Probabilistic Systems.
Currently Lecturer at Bhopal University (India).
8. Hongfei Fu (Ph.D. RWTH Aachen, 2014):
Verifying Probabilistic Systems: New Algorithms and Complexity Results.
Currently Researcher at ISCAS Beijing (China) and IST Austria.
9. Mark Timmer (Ph.D. with distinction, University of Twente, 2013):
Efficient Modelling, Generation and Analysis of Markov Automata.
(Co-supervised by Jaco van de Pol and Mariëlle Stoelinga).
Currently Mathematics Teacher (The Netherlands).
10. Haidi Yue (Ph.D. RWTH Aachen, 2013):
Analyzing Energy Consumption of Wireless Networks: A Model-based Approach.
11. Viet Yen Nguyen (Ph.D. RWTH Aachen, 2012):
Trustworthy Space Craft Design Using Formal Methods.
Currently CTE of Company in Copenhagen (Denmark).
12. Alexandru Mereacre (Ph.D. with distinction, RWTH Aachen, 2011):
Verification of Continuous-Space Stochastic Systems.
Currently Postdoc at University of Oxford (UK).
13. Marijn Jongerden (Ph.D. University of Twente, 2010):
Model-Based Energy Analysis of Battery Powered Systems.
(Co-supervised by Boudewijn Haverkort).
Currently Postdoc at the University of Twente (NL).
14. Daniel Klink (Ph.D. RWTH Aachen, 2010):
Three-Valued Abstraction of Stochastic Systems.

15. Martin Neuhäuser (Ph.D. with distinction, RWTH Aachen and Univ. of Twente, 2010):
Model Checking Nondeterministic and Randomly Timed Systems.
Currently Senior Expert in Formal Verification at Siemens AG, Nürnberg (Germany).
16. Tingting Han (Ph.D. with distinction, RWTH Aachen and University of Twente, 2009):
Diagnosis, Synthesis, and Analysis of Stochastic Systems.
Currently Lecturer in Computer Science, Birkbeck, University of London (UK)
17. Stefan Rieger (Ph.D. RWTH Aachen, 2009):
Verification of Pointer Programs.
Currently Research Scientist at TWT GmbH (Germany).
18. Carsten Kern (Ph.D with distinction, RWTH Aachen, 2009):
Learning Communicating and Nondeterministic Automata.
Currently Professor at the Regensburg University of Applied Sciences (Germany).
19. Ivan S. Zapreev (Ph.D. University of Twente, 2008):
Model Checking Markov Chains: Techniques and Tools.
Currently Postdoc at Technical University Delft (The Netherlands).
20. Dino Distefano (Ph.D. University of Twente, 2003):
On Model Checking the Dynamics of Object-Based Software: A Foundational Approach.
(Co-supervised by Arend Rensink).
Currently Professor at Queen Mary University (UK) and affiliated with Facebook.
21. David N. Jansen (Ph.D. University of Twente, 2003):
Extensions of Statecharts: with Probability, Time, and Stochastic Timing.
(Co-supervised by Roel Wieringa).
Currently Associate Professor at ISCAS Beijing (China).
22. Pedro R. D'Argenio (Ph.D. University of Twente, 1999):
Algebras and Automata for Timed and Stochastic Systems.
(Co-supervised by Ed Brinksma).
Currently Professor at the Universidad Nacional de Córdoba (Argentina).

Current doctoral students: Harold Brintjes, Christian Dehnert, Arnaud van Harmelen (Twente), Sebastian Junges, Benjamin Kaminski, Tim Lange, Christoph Matheja, Tim Quatmann, Enno Ruijters (Twente), Matthias Volk.

POST-DOCTORAL RESEARCHERS

2014–2017	Federico Olmedo, now Assistant Professor at University of Santiago de Chile
2013–2016	Nils Jansen, now Assistant Professor at Nijmegen University, The Netherlands
2014–2014	Anton Wijs, now Assistant Professor at Eindhoven University, Netherlands
2012–2013	Srivathsan Baluguru, now Lecturer at Chennai Mathematical Institute, India
2009–2011	Etienne Lozes, now at ENS Cachan, France
2009–2010	Tingting Han, now Lecturer at Birkbeck College, London, UK
2007–2008	David N. Jansen, now Associate Professor at ISCAS Beijing, China
2006–2007	Erika Ábrahám, now Professor at RWTH Aachen University, Germany
2002–2003	Suzana Andova, now Assistant Professor at Fontys Hogeschool, The Netherlands

1. STORM, a probabilistic model checker (since 2017).
2. JUGGRNAUT, a tool for automated pointer analysis of Java Bytecode programs (2015).
3. PROPHECY, a tool for parameter synthesis of Markov chains (since 2015).
4. PRINSYS, a tool for synthesizing loop-invariants for probabilistic programs (since 2013).
5. COMPASS, a tool-set for the verification and analysis of AADL models (since 2009).
6. LIBALF, an open-source library for learning formal languages (since 2010).
7. SMYLE, learning communicating automata from MSCs (since 2007).
8. MRMC, a model checker for Markov reward chains and decision processes (since 2005).
9. MOTOR, a discrete-event simulator for compositional stochastic automata (2002-2008).
10. ETMCC, a model checker for continuous-time Markov chains (1999-2004).

KEYNOTE TALKS

Conferences

- 2017 ICTAC, *Int. Colloquium on Theoretical Aspects of Computing*, Vietnam
- 2016 FAMC, *Annual Meeting on Formal Methods in Computer Science*, China
- 2016 LICS, *IEEE Annual Symp. on Logic in Computer Science*, USA
- 2016 *Symp. on Automata, Logic and Games*, Singapore
- 2016 NETYS, *Int. Conf. on NETworked sYStems*, Maroc
- 2016 WATA, *Int. Conf. on Weighted Automata: Theory and Applications*, Denmark
- 2016 SC², *Software-Centric Systems Conference*, The Netherlands
- 2015 ATVA, *Int. Symp. on Automated Technology for Verification and Analysis*, China
- 2015 CAV, *Int. Conf. on Computer-Aided Verification*, USA
- 2014 SEFM, *Int. Conf. on Software Engineering and Formal Methods*, France
- 2013 CONCUR, *Int. Conf. on Concurrency Theory*, Argentina
- 2012 ICATPN & ACSD, *Int. Conf. on Application and Theory of Petri Nets and Concurrency and Application of Concurrency to System Design*, Germany
- 2012 ASE, *IEEE/ACM Int. Conf. on Automated Software Engineering*, Germany (tutorial with M. Bozzano and T. Noll)
- 2012 IFM & ABZ, *Joint Conf. on Integrated Formal Methods & ASM, B and Z*, Italy (tutorial with M. Bozzano and V.Y. Nguyen).
- 2011 IMCPS, *Int. Symp. on Interdisciplinary Modelling of Cyber-Physical Systems*, UK
- 2011 FSEN, *Int. Conf. on Fundamentals of Software Engineering*, Iran
- 2010 VMCAI, *Int. Conf. on Verification, Model Checking and Abstract Interpretation*, Spain
- 2009 FM, *Formal Methods Week*, The Netherlands (soiree with E.A. Emerson)
- 2009 FMCO, *Int. Symp. on Formal Methods for Components and Objects*, The Netherlands
- 2008 TASE, *IFIP/IEEE Int. Symp. on Theoretical Aspects of Software Engineering*, China
- 2007 FORMATS, *Int. Conf. on Formal Methods and Analysis of Timed Systems*, Austria

- 2005 FMCO, *Int. Symp. on Formal Methods for Components and Objects*, The Netherlands
- 2005 SEFM, *IEEE Int. Conf. on Software Engineering and Formal Methods*, Germany (tutorial with H. Hermanns and D.N. Jansen)
- 2002 IFIP Performance, *IFIP Symp. on Computer Performance Modeling, Measurement and Evaluation*, Italy (tutorial with B.R. Haverkort).
- 2002 *Int. Conf. on Modelling Tools and Techniques for Computer and Communication System Performance Evaluation*, UK (tutorial with B.R. Haverkort)
- 2001 ICATPN, *Int. Conf. on Application and Theory of Petri Nets*, UK (tutorial with J. Hillston)
- 2001 CONCUR, *Int. Conf. on Concurrency Theory*, Denmark (tutorial with H. Hermanns)
- 2001 *Int. Conf. on Measurement, Modelling, and Evaluation of Computer-Communication Systems*, Germany
- 1998 ACM Sigmetrics/IFIP Performance, *Conf. on Measurement and Modeling of Computer Systems*, USA (tutorial with U. Herzog and H. Hermanns)
- 1996 FORTE/PSTV, *Joint Int. Conf. on Formal Description Techniques and Protocol Specification, Verification and Testing*, Germany (tutorial with D. Latella)

Workshops

- 2017 *5th Annual ETH Zurich Workshop on Software Correctness and Reliability*, Switzerland
- 2017 SynCOP+PV, *ETAPS Workshop on Synthesis of Complex Parameters and Parameterized Verification*, Sweden
- 2016 EXPRESS+SOS, *Workshop on Expressiveness in Concurrency and Structural Operational Semantics*, Canada
- 2016 *Bellairs Workshop on Probabilistic Programming*, Barbados
- 2016 MBMV, *19th Workshop on Methoden und Beschreibungssprachen zur Modellierung und Verifikation von Schaltungen und Systemen*, Germany
- 2016 DMCD, *Dutch Model Checking Day*, The Netherlands
- 2015 *RSS Workshop on Abstraction and Synthesis of Correct-by-Construction Robotics Software*, Italy
- 2014 *20th Anniversary of Tools for the Construction and Analysis of Computer Systems (TACAS)*, France
- 2013 *Workshop on Probabilistic and Hybrid System Verification*, China
- 2013 GRSRD, *3rd Grande Region Security and Reliability Day*, Luxembourg
- 2011 FMICS, *Formal Methods for Industrial Critical Systems*, Italy
- 2011 RP, *Workshop on Reachability Problems*, Italy
- 2011 HAS, *ETAPS Workshop on Hybrid Autonomous Systems*, Germany
- 2010 *Workshop on Automata and Logic for Data-Manipulating Programs*, France
- 2010 *FLOC Workshop Modeling, Languages and Analysis of Quantitative Systems*, UK
- 2010 *Formal Methods for Predictable Embedded Systems*, Germany
- 2010 ICE, *Workshop on Interaction, Concurrency, and Experience*, The Netherlands
- 2009 FMES, *Formal Methods for Embedded Systems*, Germany

- 2009 NWPT, *Nordic Workshop on Programming Theory*, Denmark
- 2008 *IEEE CDC Workshop on Stochastic Hybrid Systems*, Mexico
- 2005 AVOCS, *Automated Verification of Critical Systems*, UK
- 2004 *IEEE CDC Workshop on Stochastic Hybrid Systems*, Bahamas
- 2004 PASM, *CONCUR Workshop on Practical Applications of Stochastic Modeling*, UK
- 2004 *Bellairs Workshop on Probabilities in Artificial Intelligence*, Barbados
- 2004 *10th Anniversary of Tools for the Construction and Analysis of Computer Systems (TACAS)*, Spain
- 2003 *Process Algebra: Open Problems and Future Directions*, Italy
- 2003 ISVQP, *Infinite-state Systems and Verification of Quantitative Properties*, France
- 2002 SAVE, *FLOC Workshop on Specification, Analysis and Validation for Emerging Technologies in Computational Logic*, Denmark
- 1996 *Methods for the Verification and Specification of Concurrent and Distributed Systems*, Italy

Doctoral Schools

- 2017 MOD, NATO Marktoberdorf Summer School on *Logical Methods for Safety and Security of Software Systems*, Germany
- 2017 oCPS, Ph.D. School on *Cyber-Physical Systems*, Italy
- 2015 RIO, 22th Summer School on *Computer Science*, Argentina
- 2014 MOVEP, School on *Modeling and Verification of Parallel Processes*, France
- 2014 AVoCS-SPEs, Summer School on *Model-based Design and Analysis of Cyber-Physical Systems*, The Netherlands
- 2013 SFM, 13th School on *Formal Methods for the Design of Computer, Communication and Software Systems: Dynamical Systems*, Italy
- 2012 ROCKS, Autumn School on *Rigorous dependability analysis using model Checking techniques for Stochastic systems*, Italy
- 2012 MOD, NATO Marktoberdorf Summer School on *Engineering Dependable Software Systems*, Germany
- 2011 VTSA, 4th School on *Verification Technology, Systems & Applications*, Belgium
- 2011 RIO, 18th Summer School on *Computer Science (RIO)*, Argentina
- 2010 Summer School on *Model Checking*. Beijing, China
- 2010 MOVEP, School on *Modeling and Verification of Parallel Processes*, Germany
- 2010 QMC, ARTIST-Design Spring School on *Quantitative Model Checking*, Denmark
- 2008 GLOBAN, School on *Global Computing Approach to Analysis of Systems*, Poland
- 2007 MOTIVES, ARTIST2 Summer School on *MOdelling, TestIng, and Verification for Embedded Systems*, Italy
- 2005 ARTIST2 Summer School on *Component Modelling, Testing & Verification and Static Analysis for Embedded Systems*, Sweden
- 2004 SFM, 4th Summer School on *Formal Methods: Real-Time Systems*, Italy
- 2000 FMPA, EEF-School on *Formal Methods and Performance Analysis*, The Netherlands

Distinguished Speaker Series

- *Festschrift Symposium in Honor of 60th Birthday of Ed Brinksma*. Enschede, The Netherlands, 2017.
- *Festschrift Symposium in Honor of 60th Birthday of Kim G. Larsen*. Aalborg, Denmark, 2017.
- *IRIF (Institut de Recherche en Informatique Fondamentale) Distinguished Speaker Series*. Paris, France, 2017.
- *Festschrift Symposium in Honor of 60th Birthday of Ernst-Rüdiger Olderog*. Oldenburg, Germany, 2015.
- *Belgian Seminar on Computer-Aided Verification*. Brussels, Belgium, 2015.
- *Seminar on the Opening of the FUNDP Research Centre Fundamentals of Computer Science (FOCUS)*. Namur, Belgium, 2012.
- *Workshop on the 15th Anniversary of LSV*. ENS Cachan, France, 2012.
- *Seminar on the Opening of the VKR Research Centre of Excellence MT-LAB*. Lyngby University, Denmark, 2009.
- *IFIP WG 2.2 Meeting on Formal Description of Programming Concepts*. Warsaw, Poland, 2010 and Bologna, Italy, 2009.
- *IFIP WG 2.2 Meeting on Formal Description of Programming Concepts*. Nancy, France, 2007.
- *German Verification Day (GVD)*. Bonn, Germany, 2006.
- *Workshop Honorary Doctorate of Gerard Holzmann*. University of Twente, 2006.
- *Inaugural Lecture*, RWTH Aachen University, December 2005.
- *Dagstuhl Seminar on Probabilistic Methods in Verification and Planning*. Schloß Dagstuhl, Germany, 2003.
- *Belgian Seminar on Computer Aided Verification*. Brussels, Belgium, 2003.

Computer Science Colloquia at, amongst others: IST Austria, National University Singapore, Chennai Mathematical Institute (India), Jiaotong University (Shanghai, China), Shaan'xi University (China), Microsoft Research (Cambridge, UK), Queen Mary University (London, UK), NII Shonan Research Centre (Zushi, Japan), TATA Institute for Fundamental Research (Mumbai, India), Chinese Academy of Sciences (Beijing, China), Tsinghua University (China), Tongji University (China), Microsoft Research (Trento, Italy), Free University Amsterdam, Saarland University, University of Luxembourg, University of Magdeburg, University of Oldenburg, University of Stuttgart, University of Bremen, ESA Research Center, IRISA Rennes, Aalborg University, Danish Technical University Lyngby, ENS Cachan, Fondazione Bruno Kessler (Trento, Italy), University of Oxford, LFCS Edinburgh, Philips Research Labs, University of Freiburg, University of Münster, IBM Watson Research Laboratories, SUNY at Stony Brook, NASA Langley Research Centre, Caltech, University of California at Santa Cruz, University of Berkeley, University of Illinois at Urbana-Champaign, CWI Amsterdam, Shell Research Laboratories.

Katoen published more than **170** reviewed conference papers and more than **70** journal papers. According to Google Scholar (August 2017), his publications received **14,800** citations in total. His Hirsch-index is **55**. guide2research.com [Guide2Research](http://Guide2Research.com) ranks him among the 1,000 highest H-index researchers in CS and Electrical Engineering. Microsoft Academic ranks him at position 1,500 in the list of most cited authors in Computer Science of all time. Joost-Pieter Katoen co-authored with Christel Baier the textbook “Principles of Model Checking” (2008, MIT Press). It is the one-but-most cited textbook in model checking (with about **3,300** citations), and is the best-seller in the field according to Amazon sales ranks.

Ten of his major publications are:

1. **J.-P. KATOEN**. *The Probabilistic Model Checking Landscape*. In: **Logic in Computer Science (LICS)**, ACM, 2016.
2. B. L. KAMINSKI, **J.-P. KATOEN**, C. MATHEJA, AND F. OLMEDO. *Weakest Precondition Reasoning for Expected Run-Times of Probabilistic Programs*. In: **European Symp. of Programming**, volume 9632 of LNCS, Springer, 2016 (EATCS Best Theory Paper Award.)
3. M. BOZZANO, A. CIMATTI, **J.-P. KATOEN**, V. Y. NGUYEN, T. NOLL, AND M. ROVERI. *Safety, Dependability, and Performance Analysis of Extended AADL Models*. In: **The Computer J.**, 54(4), 2011.
4. T. CHEN, T. HAN, **J.-P. KATOEN**, AND A. MEREACRE. *Model Checking of Continuous-Time Markov Chains against Timed Automata Specifications*. In: **Logical Methods in Computer Science**, 7(1), 2011.
5. B. BOLLIG, **J.-P. KATOEN**, C. KERN, AND M. LEUCKER. *Learning Communicating Automata from MSCs*. In: **IEEE Transactions on Software Engineering**, 36(3), 2010.
6. C. BAIER AND **J.-P. KATOEN**. *Principles of Model Checking*. The MIT Press, 2008.
7. P. R. D’ARGENIO, AND **J.-P. KATOEN**. *A Theory of Stochastic Systems. Part I: Stochastic Automata*. In: **Information and Computation**, 203(1), 2005.
8. D. DISTEFANO, **J.-P. KATOEN**, AND A. RENSINK. *Who is Pointing When to Whom? – On the Automated Verification of Linked List Structures*. In: **Foundations of Software Technology and Theoretical Computer Science (FSTTCS)**, volume 3328 of LNCS, Springer-Verlag, 2004.
9. C. BAIER, B. R. HAVERKORT, H. HERMANNNS, AND **J.-P. KATOEN**. *Model-Checking Algorithms for Continuous-Time Markov chains*. In: **IEEE Transactions on Software Engineering**, 29(6), 2003.
10. A. NYMEYER AND **J.-P. KATOEN**. *Code Generation based on Formal Bottom-up Rewrite Systems Theory and Heuristic Search*. In: **Acta Informatica**, 34(4): 597–635, 1997.

A full list of publications is available at:

<http://moves.informatik.rwth-aachen.de/~katoen/pubs.php?al=no>

7. European Space Agency (ESA), *COMPASS 3.0*, 2017, 50 KEuro.
8. BMBF KMU-Verbundprojekt, *Highly Robust Wireless Communication for Industrial Applications*, 2014–2017, about 125 Keuro.
9. Huawei, *Basestation Performance Optimisation*, 2015–2016, 90 KEuro.
10. European Space Agency (ESA), *Catalogue of System and Software Properties (CATSY)*, 2014–2016, 100 KEuro.
11. Distinguished Professorship, DFG Excellence Programme, *Automating Probabilistic Program Analysis*, 2013–2017, about 670 Keuro.
12. Theodore von Kármán Fellowship, DFG Excellence Programme, together with a DFG Collaboration Initiator Grant, 2013, 18 Keuro.
13. Siemens/RWTH Aachen Project on *Verifying PLC Programs*, 2013–2018, 380 KEuro.
14. European Space Agency (ESA), *Hardware Software Development for Launchers (HASEL)*, 2012–2014, 100 KEuro.
15. FP7 Programme European Commission, *Distributed MILS for Dependable Information and Communication Infrastructures*, (S. Hansen, The Open Group, PI), 2012–2015, about 320 Keuro.
16. FP7 Programme European Commission, *Self Energy-Supporting Autonomous Computation (SENSATION)*, (K.G. Larsen, Aalborg University, PI), 2012–2015, about 300 KEuro.
17. Dutch Science and Technology Foundation (STW), *smARt Railroad maintenance eNGineERING with stochastic model checking (ARRANGEER)* (together with M. Stoelinga, U. Twente), 2012–2016, 500 Keuro.
18. ATL Microsoft/RWTH Aachen Project on *Optimizing Energy Consumption in an Automotive Environment*, 2011–2012, 100 KEuro.
19. EU Marie Curie Programme International Research Staff Exchange Scheme (IRSES), *Mobility between Europe and Argentina applying Logics to Systems (MEALS)*, (H. Hermanns, Saarland University, PI), 2012–2016, 50 Keuro.
20. FP7 Programme European Commission, *Correct and Efficient Accelerator Programming (CARP)*, (A. Donaldson, Imperial College, PI) 2011–2014, 280 KEuro.
21. German Research Council (DFG), *Counterexample Generation for Stochastic Models by Bounded Model Checking (CeBUG)*, (together with B. Becker, Freiburg and E. Abrahám, RWTH), 2010-2013, 200 KEuro.
22. Dutch Research Council (NWO), *Efficient Multi-Core Model Checking (E(MC)²)*, (D. Boshnacki, TU Eindhoven, PI) 2009-2013, 100 KEuro.
23. FP7 Programme European Commission, *Modeling and Verification of Stochastic Hybrid Systems (MOVES)*, (J. Lygeros, ETH Zurich, PI) 2010–2013, 310 KEuro.
24. NPI Programme European Space Agency (ESA), *Extending and Improving Formal Methods for System/Software Co-Engineering*, 2010–2012, 90 KEuro.
25. Dutch Research Council (NWO), *Symbolic Reduction of Probabilistic Models (SYRUP)*, 2009–2013, 190 KEuro.

26. Bilateral DFG-NWO research programme, *Rigorous Dependability Analysis using Stochastic Model Checking Techniques* (ROCKS), 2009-2012, 110 KEuro.
27. Excellence Initiative German Research Council (DFG), *Junior Professorship on Theory of Hybrid Systems*, 2008–2013, 980 KEuro.
28. European Space Agency (ESA), *Correctness, Modeling and Performance of Aerospace Systems* (COMPASS), 2008–2011, 560 KEuro.
29. FP7 Programme European Commission, *Quantitative Aspects in Model-Driven Embedded System Design* (QUASIMODO), (K.G. Larsen, Aalborg, DK, PI), 2008–2011, 220 KEuro.
30. Excellence Cluster Programme of the German Research Council (DFG), *Ultra High-Speed and Mobile Communication* (UMIC), (G. Ascheid, RWTH, PI), 2005–2010, 200 KEuro.
31. Research Training Group funded by the German Research Council (DFG), *Algorithmic Synthesis of Reactive Systems* (ALGOSYN), (W. Thomas, RWTH, PI), 2005–now, 600 KEuro.
32. Dutch Research Council (NWO), *Verifying Quantitative Properties of Embedded Systems* (QUPES), 2005–2009, 368 KEuro.
33. Bilateral DFG-NWO research programme, *Validation of Stochastic Systems 2* (VOSS 2), 2005–2008, 100 KEuro.
34. Dutch Research Council (NWO), *Model Checking of Infinite-State Markov Chains* (MC = MC), 2003–2007, 343 KEuro. (joint project with B. Haverkort).
35. Bilateral DFG-NWO research programme, *Validation of Stochastic Systems* (VOSS), 2001–2004, 75 KEuro.
36. Dutch Research Council (NWO), *Specification-based Performability Checking* (SPACE), 2000–2003, 125 KEuro.
37. German Research Council (DFG), *Automated Verification of Quality-of-Service Aspects of Distributed Systems*, (U. Herzog, Erlangen, PI), 1998–2001, 175 KEuro.
38. Deutsche Akademische Austausch Dienst (DAAD), *Stochastic Modelling and Verification* (U. Herzog, Erlangen, PI), 1998–2001, 15 KEuro.
39. CNR-CNUCE (Italy), *Event Structures Quantitative, Simulazione Discreta e Modelli per la Performance*, (D. Latella, CNUCE, PI), 1997–1999, 15 KEuro.
40. CNR-CNUCE (Italy), *EStensione Probabilistiche e Temporalis dell'algebra di processi LOTOS bassate su strutture di eventi, per la specifica e analisi quantitative di sistemi distribuiti*, (D. Latella, CNUCE, PI), 1994–1996, 15 KEuro.

For joint projects, the indicated funding refers to **my** part of the funding, and do not indicate the total budget of the project. The total funding acquired is more than **8 million** Euro.

UNIVERSITY ACTIVITIES

Lecturing

Ph.D. courses: Performance Analysis by Model Checking (IMT Lucca, Italy, 2012 and 2014), Model Checking Markov Chains (Universidad Nacional Rio Cuarto, Argentina, 2011 and 2015), Principles of Model Checking (Chinese Academy of Sciences, 2010, IPA Research School, 2009, Nanjing University and Tsinghua University, China, 2008), Analysis of Probabilistic Systems (University of Florence, Italy, 2006), Specification and Validation of Stochastic Systems (University of Birmingham, UK, 2000), Model-Checking Real-Time Systems (University of Pisa, Italy, 1997).

M.Sc. courses: Model Checking, Advanced Model Checking, Modeling and Verification of Probabilistic Systems, Concurrency Theory, Probabilistic Programming, Theoretical Foundations of the UML, Communication Protocol Design, Automated Validation of Parallel Systems, System Validation, Tool Architecture.

B.Sc. courses: Algorithms and Data Structures ³, Computability and Complexity Theory, Formal Languages and Automata Theory.

Tutoring: Compiler Construction, Design of Distributed Systems, Formal Specification Techniques, Algorithms and Data Structures, Functional Programming, Automata and Language Theory, Software Engineering Project, Formal Methods for Software Engineering.

Membership in Ph.D. and Habilitation Committees

Internal Ph.D. Examiner: J. Romijn (1999), T.C. Ruys (2001), F.J. Sluiman (2002), S. Strubbe (2005), L. Cloth (2007), M. Englert (2008), L. Kaiszer (2008), H. Karstenberg (2008), G. Quiros (2010), C. Li (2010), E. Zambon (2013), T. Ngo Minh (2014), A. Kolesnichenko (2014), X. Zhang (2015), Y. Chen (2015), T. van Dijk (2016), H. Ghasemieh (2017), T. Cramer (2017).

External Ph.D. Examiner: G. Clarke (Edinburgh, 1999), A.G. Engels (Eindhoven, 2001), M. Bravetti (Bologna, 2001), H. Bohnenkamp (RWTH Aachen, 2002), M. Stoelinga (Nijmegen, 2002), J. Bengtson (Uppsala, 2002), J. den Hartog (VU Amsterdam, 2002), S. Andova (Eindhoven, 2002), F. Bartels (VU Amsterdam, 2004), J. Meyer-Kayser (Erlangen, 2004), S. Abbes (IRISA Rennes, 2004), S. Cattani (Birmingham, 2005), M. Hendriks (Nijmegen, 2005), L. Cheung (Nijmegen, 2006), A. Mooij (Eindhoven, 2006), S. Johr (Saarland, 2007), J. Markovski (Eindhoven, 2008), M. Größer (TU Dresden, 2008), R. Mak (Eindhoven, 2008), F. Dankar (Ottawa, 2008), F. Horn (Paris 7, 2008), T. Chen (VU Amsterdam, 2009), M. Smith (Edinburgh, 2010), N. Coste (Verimag Grenoble, 2010), B. Delahaye (INRIA Rennes, 2010), J. Berendsen (Nijmegen, 2010), M. Andres (Nijmegen, 2011), A. Classen (Namur, 2011), B. Srivathsan (Bordeaux, 2012), L. Song (IT Copenhagen, 2012), E. Amparore (Torino, 2013), J. Krétinsky (TU Munich, 2013), N. Müllner (Oldenburg, 2014), M. Randour (Mons, 2014), J. Krétinsky (Brno, 2014), R. Kindermann (Aalto University, 2014), M. Shirmohammadi (ENS Cachan, 2014), D. Gebler (VU Amsterdam, 2015), M. Swaminathan (Oldenburg, 2015), P. Fournier (Rennes, 2015), Y. Li (Eindhoven, 2016), D. Stan (ENS Saclay, 2017), R. Saha (National Univ. Singapore, 2017), C. Dubslaff (TU Dresden, 2018).

External Habilitation Committees: P. Bouyer (ENS Cachan, 2008), R. Wimmer (University of Freiburg, 2017).

³Recipient of the “Lehrpreis Informatik RWTH Aachen”, 2010.

University Committees

- Student member of the Faculty Board of Computer Science, U. Twente, 1986–1987.
- Staff representative in the Faculty Board of Computer Science, U. Twente, 1993–1995.
- Head of Formal Methods and Tools Group, replacing prof.dr. H. Brinksma due to his sabbatical leave, Jan. 2000–Aug. 2000.
- Chairman Examination Board of Telematics at Twente, 2000–2005.
- Member of the Committee on Restructuring the CS Curriculum, U. Twente, 2000.
- Editor of CS Research Evaluation 1996–2001 for the Faculty of Computer Science, U. Twente, 2002.
- Chair Management Team of Formal Methods and Tools Group, 2002–2005.
- Chair Examination Board Computer Science at RWTH Aachen, 2008–2011.
- Deputy Chair of the Graduiertenkolleg Algorithmic Synthesis of Discrete Reactive Systems, 2011–2015.
- Member of more than twenty Selection Committees of Junior, Associate and Full Professors, 2005–now.
- Chair of Selection Committee Junior Professor on Theory of Hybrid Systems, 2007.
- Chair of Selection Committee of Full Professor on Parallel Programming, 2009.
- Chair of Selection Committee of Full Professor on Logics and Automata Theory, 2011.
- Chair of Evaluation Committee of Junior Professor on Theory of Hybrid Systems, 2011.
- Member Selection Committee of Professor at Free University of Brussels, Belgium, 2012.
- Member Assessment Committee of Associate Professor DTU Lyngby, Denmark, 2012.
- Member Scientific Council of the Doctorate School on Information Engineering, University of Trieste, Italy, 2008–2010.
- Head of Computer Science Department, RWTH Aachen, April 2012–2015.
- Deputy Head of Computer Science Department, RWTH Aachen, 2015–2017.
- Member of the Faculty Board, RWTH Aachen, 2012–2016.
- Treasurer of Computer Science Department, RWTH Aachen, since 2015.
- Member Appointment Committee Director Max Planck Gesellschaft, 2015.
- Member Selection Committee Associate Professor, University of Oxford, UK, 2017.
- Member Selection Committee Associate Professor, Aalborg University, Denmark, 2017.
- Deputy Chair Advisory Committee European Projects, RWTH Aachen, since 2017.

PROFESSIONAL ACTIVITIES

Membership in Steering Committees

1. Workshop on PROBABILISTIC METHODS IN VERIFICATION (PROBMIV), 1998–2003.
2. Conference on QUANTITATIVE EVALUATION OF SYSTEMS (QEST), 2004–2007 (Founding member), 2009–now. Chair of the QEST steering committee 2012–2016.

3. EUROPEAN JOINT CONFERENCE ON THEORY AND PRACTICE OF SOFTWARE (ETAPS), 2001–2003 and 2005–now. Deputy Chair of the ETAPS steering committee 2011–2013. Elected Chair of the ETAPS SC from April 2013 on. Re-elected in 2017.
4. Conference on FORMAL MODELING AND ANALYSIS OF TIMED SYSTEMS (FORMATS), 2009–now.
5. Conference on TOOLS AND ALGORITHMS FOR THE CONSTRUCTION AND ANALYSIS OF SYSTEMS (TACAS), 2011–2013.
6. Conference on CONCURRENCY THEORY (CONCUR), 2013–now.

Membership in Program Committees

I have acted as PC member in more than hundred PCs. A selection of PC memberships:

ARTS (1997 and 1999 [**chair**]), FMICS (1999 and 2007), PROBMIV (1999 and 2001), DSVV (2000 and 2001), Performance Tools (2000, 2002, and 2003), M4M (2001 and 2005), TACAS (2002 [**co-chair**], 2003, 2010, 2013, 2014), FORMATS (2003, 2005, 2008, 2014 and 2015), CONCUR (2004, 2010 and 2011 [**co-chair**], 2015), QEST (2004 [**co-chair**]–2007, 2010, 2011 [**general chair**], 2012), ISoLA (2004, 2006, 2010 and 2012), MMB (2006, 2010, 2012, 2014, 2016, 2018), PSI (2006, 2009, 2011, 2014, 2015, 2017), NSMC (2006, 2010), QAPL (2006 and 2013), VERIFY (2006, 2007 and 2010), MEMICS (2006), FSTTCS (2006), IFIP PERFORMANCE (2007), DSN (2007 and 2008), SAVCBS (2007), SOFSEM (2009), RP (2010), MOVEP (2010–2016), FASE (2011), ICALP (2011 and 2016), CAV (2011, 2013, 2015, 2016), FoSSaCS (2012), FMICS (2012), CIAA (2012), ATVA (2012–2015, 2017), LATA (2013, 2014, 2016, 2017), FSEN (2013–2017), FORTE/FMOODS (2013), IEEE INDIN (2013), SMC (2013), Petri Nets (2014–2016), SEFM (2015 and 2016), Frontiers of Formal Methods (2015), HSCC (2016 and 2018), FM (2016 and 2018), CSL (2017), SafeComp (2017), ADHS (2018).

Other Review Activities

Expert Panel Member for PhD Fellowships Flanders Research Foundation (FWO, 2017); Review Panel Research Evaluation School of Electronic, Information and Electrical Engineering (SEIEE) Shanghai Jiao Tong University (SJTU, China) (2017); Studienstiftung des deutschen Volkes (Germany); Review Panel Computer and Information Science, ERC (2015 and 2017); Royal Academy of Science (UK); Singapore Ministry of Education; Review Panel Research Evaluation INRIA Research Centre (France, 2012); Reviewer of Zentralblatt MATH (since 2011); Book referee Cambridge University Press and MIT Press; Advanced and Starting Research Grants, European Research Council (as member of the ERC Review College, 2010–2013); Alexander von Humboldt Stiftung (Germany); Carl-Zeiss Stiftung (Germany); Wittgenstein Award (Austria); Roger Needham Award (BSC, UK); Israel Science Foundation (ISF); Heinz-Maier Leibniz Preis (DFG, Germany); Icelandic Centre for Research; Luxembourg Science Foundation; Czech Science Foundation; Portuguese Foundation for Science and Technology; Distinguished Postdoctoral Grants (VENI Program, The Netherlands, 2007–2009); German-Israel Foundation for Scientific Research and Development; Dutch Research Council (NWO); German Research Council (DFG); Handbook of Automata Models; Handbook of Process Algebra; Vienna Science and Technology Fund; UK Engineering and Physical Sciences Research Council (as member of the EPSRC Review College, 2006–2010); Agence National de la Recherche (ANR), France.

Membership Professional Associations

ACM (senior member), ACM Special Interest Group on Logic and Computation (SIGLOG), EATCS (European Association for Theoretical Computer Science), NVTI (Dutch Association for Theoretical Computer Science), GI (German Association for Computer Science), IEEE, ETAPS e.V. (European Joint Conferences on Theory and Practice of Software), EAPLS (European Association for Programming Languages and Systems).

Membership of Boards

- Chairman ETAPS e.V. Association, since 2015.
- Project leader NWO-DFG bilateral project Validation of Stochastic Systems, 2001–2007.
- Board member Dutch Society for Theoretical Computer Science (NVTI), 2005–2013.
- Project leader ESA Project Correctness Modelling and Performance of Aerospace Systems (COMPASS), 2008–2010.
- Member EPSRC Review College, 2006–2010.
- Member Board of Doctorate School on Information Engineering, University of Trieste, Italy, 2007–now.
- Member Scientific Board Research Centre FOCUS, Univ. of Namur, Belgium, 2010–now.
- Vice-chairman of the Research Training Group on Algorithmic Synthesis of Discrete- and Continuous Reactive Systems (ALGOSYN), 2011–2015. Chairman in 2016.
- Chairman of the Research Training Group on Uncertainty and Randomness in Algorithms, Verification and Logic (UnRAVeL), 2017–2022.

- 2018 *Lorentz Symposium Safety of Future Systems: Science Meets Industry*. The Netherlands. (With A. Cimatti, M. Kuntz, M. Stoelinga, and M. Verhoef).
- 2018 *Dagstuhl Seminar Machine Learning Meets Model Checking*. Germany. (With N. Jansen, P. Kohli, and J. Kretinsky).
- 2017 *Spring School Foundations of Probabilistic Programming*. Portugal. (With A. Silva, L. Barbosa, and G. Barthe).
- 2017 *Workshop Formal Methods for Modeling, Analysis and Testing*. In honour of the 60th birthday of Ed Brinksma. The Netherlands. (With R. Langerak and A. Rensink).
- 2017 *ETAPS Workshop Learning in Verification (LiVe)*. Sweden. (With J. Kretinsky).
- 2016 *Workshop Trends and Challenges in Quantitative Verification*. India. (With S. Akshay, B. Srivathsan, and I. Walukiewicz).
- 2015 *Dagstuhl Seminar Trends in Probabilistic Programming*. Germany. (With G. Barthe, A. Gordon, and A. McIver).
- 2013 *Dagstuhl Seminar Correct and Efficient Accelerator Programming*. Germany. (With A. Cohen, A. Donaldson, and M. Huisman).
- 2012 *ETAPS Workshop Hybrid Autonomous Systems (HAS)*. Estonia. (With M. Bujorianu and E. Frazzoli).
- 2011 *Aachen Concurrency and Dependability Week (CONCUR, QEST, TGC)*. Germany.
- 2010 *Ph.D. School Quantitative Model Checking (QMC)*. Denmark. (With K.G. Larsen).
- 2009 *1st Young Researchers Workshop at CONCUR (YR-CONCUR)*. Italy.
- 2009 *ETAPS Workshop on Correctness, Modeling and Performance of Aerospace Systems*. UK. (With A. Cimatti).
- 2007 *Workshop Logics and Automata: History and Perspectives*. In honour of the 60th birthday of Wolfgang Thomas. Aachen, Germany.
- 2007 *Lorentz Symposium Two Decades of Probabilistic Verification*. The Netherlands. (With F. Vaandrager, C. Baier, B. Haverkort, H. Hermanns, and M. Siegle).
- 2007 *Dagstuhl Seminar Quantitative Aspects of Embedded Systems*. Germany. (With L. Thiele and B. Haverkort).
- 2005 *Workshop Process Algebra: the First 25 Years and Beyond*. Italy. (With L. Aceto, A. Gordon and W. Fokkink).
- 2004 *1st Int. Conference Quantitative Evaluation of Systems (QEST)*. The Netherlands. (With B. Haverkort).
- 2004 *GI/Dagstuhl Seminar Model-based Testing of Reactive Systems*. Germany. (With M. Broy, B. Jonsson, M. Leucker, and A. Pretschner).
- 2003 *GI/Dagstuhl Seminar Validation of Stochastic Systems*. Germany. (With C. Baier, B. Haverkort, H. Hermanns and M. Siegle).
- 2001 *Symposium 20-years Lustrum of the Computer Science Studies*. The Netherlands. Technical Universities of Twente, Eindhoven, and Delft.
- 2001 *Dutch Model Checking Day*. The Netherlands. (With E. Brinksma).
- 2000 *EEF-Summer School on Formal Methods and Performance Analysis*. The Netherlands. (With E. Brinksma and H. Hermanns).
- 1999 *5th Int. AMAST Workshop on Real-Time and Probabilistic Systems*. Germany.